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Argentina

"MUNDO ATOMICO"

8 May 1951

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OF INFO Current

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1. Reference is made to [REDACTED] concerning Subject publication.

2. Transmitted herewith is one copy of the 4th and latest edition (March - June 1951) of MUNDO ATOMICO.

3. Beginning on page 4, considerable attention is devoted to Argentina's claims of having found a new method of obtaining atomic energy and to the thermo-nuclear theory cautiously expounded by Dr. Ronald RICHTER. Also attached is a summary translation of this article. The article itself contains the entire text of a press conference held by RICHTER on 25 March 1951 at the presidential estate at Olivos, Argentina.

ENCL: 2

1. MUNDO ATOMICO (publication) - *To AEC only*
2. Translation of Article entitled "Thermonuclear Reactions"

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Summary translation of an article entitled "Thermonuclear Reactions" which appeared in the March - June 1951 issue of MUNDO ATOMICO, the Argentine scientific magazine.

On the island of Huemul at San Carlos de Bariloche is one of the best spectral laboratories in the world.

The operative nucleus at Bariloche is relatively small for two reasons: (1), for the sake of maintaining security; and (2), because electronic calculators are used to do much of the work.

In the "pilot plant" (planta piloto) at Bariloche completely new solar physics have been inaugurated. In these experiments we are not so much interested in the reaction of the material itself, but rather in developing a new technique for the reactions. A large solar furnace is being constructed, and I hope that I will soon be able to make an announcement concerning the practical results which will be obtained.

We are very interested in the production of isotopes, but as in the American and English uranium piles, this would be a waste (ashes?) for us. We are studying the possibility of avoiding this waste (the ashes) completely. In nuclear fission piles (this) radio-activity cannot be avoided. On Huemul island there is no cyclotron or Van der Graaff generator, and there is no installation of high tension in which nuclear reaction can be created. A different method has been used. We wanted to save time, and so in the reactor we installed instruments which directly analyze the particles and quanta which were originated, thereby saving months and months of work.

In the first nuclear reactions it did not matter what material was used. For example, we worked with deuterium or lithium hydrate and as we worked we learned a great deal.

During the thermonuclear reactions enormous velocities of gas were obtained — up to 3,200 kilometers per second, which is equal to approximately 1000 times the velocities of gases produced by explosives and combustibles used in rockets. These results were achieved without difficulty.

In the reactor we have photographed these explosions with a normal spectrograph without employing interferometers. This means that in these reactors are produced explosions of the same type that occur in new stars, with the same velocity of gas.

Reporter: Was there an explosion on the 16th of February at Huemul?

Richter: Yes.

Reporter: Was there a loud noise?

Richter: Yes, but the people in Fariloche couldn't have heard it, because they are six miles away.

For the first time it has been possible to produce a thermonuclear explosion inside of a reactor. Our process is infinitely cheaper, because we don't use uranium or uranium products nor do we use uranium piles or separation plants or plutonium products. Also we renounce obtaining triton. In the large reactor which we are using, we are investigating what material is the most convenient to use.

Reporter: Regarding the industrial application of atomic energy, and especially application of atomic energy to the smelting of ore, is it possible to apply atomic energy in technical and economic conditions which are more favorable than the common usage of electricity and coal?

Richter: Yes, it is possible, since there are very high temperatures in the zones of reaction. Precisely, one of the problems which had to be solved was to avoid having the furnace evaporated by the heat prevailing in the reaction zone. We have succeeded in avoiding this.

Reporter: What possibilities do we have of employing this energy?

Richter: This could be applied in blast furnaces and in factories. Any other technical application would be much too complicated now, since it would require the use of machinery. However, the application in blast furnaces and factories is direct and rapid. The simplest form of application would be in blast furnaces.

Reporter: How long will it take to apply what was accomplished in the experiments of 16 February?

Richter: This question is difficult to answer because it depends on factors which are not directly related to the work. It can't be answered definitely yet, because these attempts depend on necessary constructions of the installations and the finishing of the large reactor. It is necessary to study the curve of proportionality between the results obtained and the magnitude of the experiments carried out, which could require many trials. It is certain that the thermo-nuclear reaction has been produced and the evolution necessary for its subsequent application is now known by us. We should emphasize the luck we have had. Much luck is required to resolve this question successfully in the short span of three years.

Reporter: Could atom bombs be produced in our country?

Richter: It is possible, but, in agreement with what I know, the President is opposed to this.

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Reporter: And, the hydrogen bomb?

Richter: The hydrogen bomb would only have disadvantages for us. We are cognizant of the processes which lead to obtaining the hydrogen bomb, and we know that they are terribly costly. If we wanted to make hydrogen bombs, we would have to proceed to inverting the same amount of capital into their manufacture, as other countries have done, but we wish to avoid this.

Reporter: Without specifying what materials were used in this first reaction, I would like to know if all the materials are national and can be found in Argentina.

Richter: Yes, none of the materials is foreign.

Reporter: Is the site where the reaction took place very large?

Richter: I don't wish to comment, but within a short time, I believe photographs of the installations will be published.

Reporter: Is there danger of radioactivity?

Richter: No, the only danger is from the explosions.

Reporter: What temperature is produced in the reaction?

Richter: Several million degrees.

(Explanation by Richter of temperature in terms of movement of atoms.)

Reporter: How do you arrive at these extreme temperature? Do you resort to electricity, heating, or to other explosions?

Richter: That is precisely the secret.

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